

APPENDIX 4-A**STORAGE OF ANTIMONY****1. Description**

a. Antimony may be received in the form of antimony metal, antimony sulfide ore (chemical grade), or liquated antimony sulfide. Any of these forms of antimony in storage which had originally been designated by "type" instead of "grade" shall be maintained by type unless otherwise advised by the DNSC-O.

b. Antimony metal is produced in ingots and in cakes. Ingots usually are approximately 4" wide by 10" long by 5" high. Cakes average approximately 10" square and 2-1/2" thick. Each ingot or cake averages approximately 56 pounds. Sizes from different producers may vary. The grades of antimony metal are as follows: A, B, C, and D.

c. Antimony sulfide ore (chemical grade) is a black lumpy material mixed with some fines. This material is stored as one grade only.

d. Liquated antimony sulfide is a derivative of antimony sulfide ore and is stored in one grade only. It is a heavy black lumpy substance.

2. Packaging

a. Antimony metal in ingot or cake form from foreign sources is usually received in wooden cases or kegs. Domestic material is shipped in bundles/wooden boxes/kegs or drums.

b. Antimony sulfide ore is commonly shipped in bags of approximately 130 pounds, or other containers to protect material in transit. Liquated antimony sulfide is shipped in steel drums, hardwood kegs or wooden cases weighing approximately 215 pounds. Antimony to be acquired or to be repackaged will be placed in storage in containers meeting the requirements of current acquisition specifications.

3. *Marking.* Prior to receipt, loose or bundled antimony metal ingots or cakes will have cast or die stamped, on each piece, the brand name and grade in letters of not less than 1/2" in size. Where antimony metal is received in containers, the containers shall be marked to show name of product, brand name, source, gross and net weights, Government contract number, number of ingots and grade. Containers in which sulfide ore and liquated antimony sulfide are shipped shall be similarly marked for identification purposes. The DNSC-OL shall be contacted immediately by telephone for further instructions if shipments are received prior to receipt of identifying documents, if loose or bundled metals are received without grade marking on the pieces, if packed material (box, barrel, drum, etc.) is not marked as to identity, or if grade marking or other phases of identity are not in agreement with the shipping instructions.

4. Storage

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a. Antimony metal received loose or bundled shall be stored on open improved space equivalent to Type B (stabilized aggregate), as described in this chapter, capable of sustaining a load of not less than 2,000 pounds per square foot. Antimony metal, sulfide ore and liquated antimony received in containers

shall be stored in a warehouse. Any antimony presently stored in tanks shall remain in the tanks unless otherwise advised by the DNSC-OL.

b. Segregation of antimony metal, whether in warehouses or open storage, shall be maintained by grade (A, B, C, D) and form (ingot or cake). Sulfide ore shall be stored and identified separately from that of liquated sulfide.

c. *Stacking.* Warehouse storage (barrels, boxes, drums or kegs), shall be stored on flat wooden pallets, in block method. If elimination of pallets is more feasible for the quantity and size of containers received, the material may be stored without pallets.

d. *Open Area Metals.* All antimony metal stored in open areas shall be stored with the pour (wide) side down. Storage shall be accomplished directly on the prepared surface without the use of dunnage. Broken pieces remaining after stacks are formed shall be packed in steel drums and placed with their respective block of storage. Cracked or broken antimony ingots or cakes should not be moved or put into drums unless the stability of the stack is endangered or pieces fall to the ground. Such drums shall be properly identified as to name of material, grade and total net weight.

e. Ingots received in bundled units will contain the same number of pieces in each unit. Such receipts shall be stored in their bundled form, 3 or 4 units high (surface bearing capacity governing). The storage shall be performed in block manner with perimeter stacks set in "step" fashion. Loose, unbundled ingots received shall be formed into uniform lifts and stored in the same manner as that of bundled ingots. Each lift and stack shall contain the same nominal piece count in order to facilitate the taking of a physical inventory at any time by count and computation.

f. Cakes shall be stored in rows 3 cakes wide (butted). The length of the stack should be approximately 15 to 30 feet and the height shall be from 3 to 5 feet, depending on bearing capacity of the terrain. All stacks shall be of uniform size and piece count in order to facilitate physical inventory by count and computation.

g. An aluminum tag shall be attached by means of aluminum wire to the center row. This applies only to new receipts of antimony and for replacement of aluminum tags if and when they become illegible. The tags shall be embossed to show the name of the material, grade, storage location, number of rows, pieces in each row and total pieces in the stack. For example:

(Material and Grade)	Antimony Grade B
(Storage Location) - Area A - Block 6 - Row 2	A - 6 - 2
(No of Stacks and Pieces in Each Stack)	3 - 500

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(Total Pieces in Row)

1500

5. *Precautions To Be Taken*

a. *General.* Because of brittleness, antimony metal must be handled carefully to minimize breakage losses. Antimony in all forms is more or less subject to oxidation, but in metal form this condition appears to result only in a dulling of the surface appearance with little if any loss to material or change in physical structure.

b. *Health.* Because of dust in handling antimony sulfide ore, respirators should be used; also, leather gloves for protection of hands because of sharp, friable lumps. Some persons are susceptible to “antimony measles” which appears as a rash. Gloves should be used in handling all forms of antimony.

6. *Average Storage Factor*

a. *Antimony Metal.* 3.5 net square feet per short ton

b. *Antimony Sulfide Ore.* 3.5 net square feet per short ton

c. *Liquated Antimony Sulfide.* 3.5 net square feet per short ton

FOR ADDITIONAL INFORMATION ON THIS COMMODITY REFER TO THE MATERIAL SAFETY DATA SHEET OR THE MOST RECENT PURCHASE SPECIFICATION.